What is claimed is:

1(currently amended). A process for optimizing a molding temperature during flow of molten molding material into a mold cavity, the molding material to flow while molten in the mold cavity from at least one point of injection, along a flow path having a width defined by cavity walls, and the molten material transferring heat energy to the mold cavity for cooling and setting the molten material in a shape determined by the mold cavity, said transferring of heat energy being determined by temperatures and thermal properties of the molten material and the mold cavity, the process comprising the steps of:

providing a mold cavity controllable to a predetermined pre-injection temperature that is lower than a temperature at which the molding material sets, wherein the mold cavity can be heated temporarily by injection of the molten molding material at an injection temperature that is higher then said temperature at which the molding material sets and said material thereafter cools by transfer of heat energy into the cavity, to a post-injection temperature cool enough to harden the molding material;

determining a material flow path in the mold cavity between a point of injection of the molten molding material and a remote part of the mold cavity to be filled with the molten material by flow from the point of injection;

predetermining the ~~positing a~~ pre-injection temperature of the cavity and **the** ~~an~~ injection temperature of the molten material, and mathematically determining a thickness of a thermal insulation temperature booster at least along a part of the mold cavity along the flow path, such that a temperature of the molding material is elevated to an extent that the molding material remains at a temperature higher than the temperature at which the molding material sets, until the molding material has filled the mold cavity to form a molded article**;**

cycling the molding cavity while applying a substantially constant temperature control stimulus to the mold cavity, said cycling comprising

successively and repeatedly bringing the mold cavity to a predetermined pre-injection temperature below a setting temperature of the molding material; injecting the molten molding material so as to elevate a temperature of the mold cavity at the temperature boosters to a temperature at least 10 degrees C above setting temperature of the molding material; and completely filling the mold before a flowpath in the cavity is occluded by progress of setting of the molding material in the cavity .

2(currently amended). The process of claim 1, wherein the thermal insulation temperature booster has a thickness substantially determined by the relationship:

$(T-T_s)/(Tm-T_s) = \mathrm{erfc}(X)$**;**

$X = Z/(2*(\alpha*t)^{(1/2)})$**;**

Where: T-Ts is **an** ~~the~~ amount of temperature increase to allow at **a** ~~the~~ die side of **the** booster ~~layer~~ **and is in a** ~~. A~~ range of 0.1 to 5 degrees C ~~is recommended and 0.1 degree C preferred~~**;** ~~[.]~~

T_s is **a** ~~the~~ temperature at **a** ~~the~~ cavity surface side of the booster before contact by hot melt**;** ~~[.]~~

Tm is **a** ~~the~~ desired cavity surface temperature during filling **and is in a** ~~. A~~ range of solidifying temperature plus 10 degrees C to 100 degrees C**; and,** ~~is recommended and the higher temperature is preferred.~~

α is **a** ~~the~~ thermal diffusivity of **a** ~~the~~ booster layer material**;**

t is **a** ~~the~~ time to fill the cavity**;**

Z is the thickness of the booster layer**; and,**

erfc is a complementary error function. ~~Tables of erfc that provide the value for X associated with the number from the left side of the equation are available on the internet and the literature~~.

3(currently amended). The process of claim 2, wherein the booster material is **<u>characterized</u>** ~~characterize~~ by a mathematical product of thermal conductivity, density, and specific heat **<u>of</u>** ~~are~~ no more than 2.0×10^{-6} $BTU^2/sec/in^4/{}^oF^2$ at room temperature.

4(original). The process of claim 2, wherein the booster material comprises zirconia.

Claim 5 is canceled.

6(original). The process of claim 2, wherein $T\text{-}T_s$ is substantially 0.1 degrees C.

Claim 7 is canceled.

8(original). The process of claim 1, further comprising defining the mold cavity between relatively movable clamped-together mold parts, and permitting the mold parts to become displaced during injection of the molten molding material sufficiently that the mold cavity is temporarily enlarged to a cross sectional dimension of two to ten times a desired thickness of an article to be molded in the mold cavity.

9(original). The process of claim 8, further comprising applying a varying clamping force to the clamped-together mold parts, the clamping force being greater with completion of filling, thereby obtain the desired thickness of the article.

10(currently amended). The process of claim **1** ~~7~~, further comprising maintaining a thickness of the molded article by at least one of shaping the mold cavity to have a variation in thickness, compression of the mold cavity against injection pressure and coining compression of the molded article during setting.

Claims 11 through 24 are canceled.